

L Number	Hits	Search Text	DB	Time stamp
1	214	209/935	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/15 18:13
2	0	us2002/0153227	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/15 18:14
3	1	"20020153227"	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/15 18:24
5	13	209/914 and vibratory	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/15 18:25
4	244	209/914	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/15 18:28

	106	<p> ("6292830" "4519600" "5542547" "5612863" "5720410" "6019364" "6265548" "6287765" "6355473" "6179129" "4269401" "4308960" "4328963" "4332377" "4336768" "4387639" "4455518" "4516264" "4548402" "4553312" "4775051" "4848805" "4880121" "4892509" "5000325" "5217105" "5333715" "5341369" "5421137" "5579922" "5713454" "5750908" "5775475" "5819909" "5819906" "5833114" "5845789" "5881895" "5959868" "5993630" "6059091" "6059091" "6193074" "6253901" "6287832" "6303929" "6338484" "6384593" "6433294" "6436314").pn. </p>	<p> USPAT; EPO; JPO; DERWENT; USOCR </p>	<p> 2003/06/15 22:26 </p>
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-	223	209/920	USPAT; EPO; JPO; DERWENT; USOCR	2003/06/15 23:06
-	2	209/920 and mobile	USPAT; EPO; JPO; DERWENT; USOCR	2003/06/15 23:09
-	3	209/920 and portable	USPAT; EPO; JPO; DERWENT; USOCR	2003/06/15 23:10
-	365	198/391	USPAT; EPO; JPO; DERWENT; USOCR	2003/06/15 23:10
-	6	198/391 and (mobile or portable)	USPAT; EPO; JPO; DERWENT; USOCR	2003/06/15 23:15
-	19	("2921713" "2985280" "3194392" "3474890" "3521735" "3658172" "3746211" "3747738" "4148389" "4156494" "4220257" "4236302" "4384535" "4436197" "4450948" "4453626" "4462508" "5526917" "5757092").PN.	USPAT	2003/06/15 23:14
-	75618	209/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/06/15 23:16
-	2341	209/\$.ccls. and vibratory	USPAT; EPO; JPO; DERWENT; USOCR	2003/06/15 23:16
-	40	209/\$.ccls. and (vibratory adj bowl)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 17:53
-	0	(interchangeable) near (vibratory adj bowl)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 17:53
-	0	(interchangeable) adj (vibratory adj bowl)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 17:55
-	0	(interchangeable) adj (vibratory adj bowl)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 17:55

-	670	vibratory adj bowl	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 17:55
-	25	(vibratory adj bowl) and replaceable	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 18:04
-	224	209/920	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 18:19
-	226469	29/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 18:19
-	145	29/\$.ccls. and (vibratory adj bowl)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 18:19
-	13	(29/\$.ccls. and (vibratory adj bowl)) and (plural or multiple adj supply)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/13 18:20
-	0	"profil verbindungstechnik" and vibratory	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 13:50
-	121	"profil verbindungstechnik"	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 14:00
-	3811	vibratory and rail	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 14:01
-	161	(vibratory and rail) and (vibratory adj (bowl or bin))	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 14:02
-	168	(vibratory and rail) and (vibratory adj (bowl or bin or container or receptacle))	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 14:06
-	829	(vibratory adj (bowl or bin or container or receptacle or receiver or holder or repository or reservoir or store or basin or box or bucket))	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 14:08
-	2931	(vibratory adj (bowl or bin or container or receptacle or receiver or holder or repository or reservoir or store or basin or box or bucket or feeder))	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 14:08

-	175	(vibratory and rail) and (vibratory adj (bowl or bin or container or receptacle or receiver or holder or repository or reservoir or store or basin or box or bucket))	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:17
-	37075	238/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:18
-	49134	246/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:18
-	34197	104/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:18
-	8136	305/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:18
-	63506	105/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:19
-	9228	410/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:19
-	157201	246/\$.ccls. or 104/\$.ccls. or 305/\$.ccls. or 105/\$.ccls. or 410/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:19
-	518	(246/\$.ccls. or 104/\$.ccls. or 305/\$.ccls. or 105/\$.ccls. or 410/\$.ccls.) and vibratory	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:48
-	418	((246/\$.ccls. or 104/\$.ccls. or 305/\$.ccls. or 105/\$.ccls. or 410/\$.ccls.) and vibratory) not (vibratory adj tamping)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:53
-	344	239/659	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:53
-	143	239/144	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:53
-	5	239/659 and 239/144	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:53

	482	239/659 or 239/144	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:53
	0	(239/659 or 239/144) and (vibratory adj bowl)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:54
	92426	198/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 18:54
	171	198/\$.ccls. and (vibratory adj bowl)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 19:04
	108683	414/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 19:04
	23	414/\$.ccls. and (vibratory adj bowl)	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 19:07
	75813	209/\$.ccls.	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 19:08
	57	209/\$.ccls. and (vibratory adj (bowl or bin or container or receptacle or receiver or holder or repository or reservoir or store or basin or box or bucket))	USPAT; EPO; JPO; DERWENT; USOCR	2003/10/14 19:08

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Class 209 CLASSIFYING, SEPARATING, AND ASSORTING SOLIDS

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1 MISCELLANEOUS

2 SPECIAL APPLICATIONS

3 PRECEDENT PREPARATION OF ITEMS OR MATERIALS TO FACILITATE SEPARATION

3.1 . Sorting special items or sorting by methods and apparatus includable in subclasses 509 through 707

3.2 .. Condition responsive sensor controlling preparation

3.3 .. Marking or tagging item

4 .. Selective differentiation

5 .. Deflocculation and flocculation

7 .. Form

8 .. Magnetizing and demagnetizing

9 .. Surface

10 TREATMENT SUBSEQUENT

11 WITH HEAT TREATMENT

12.1 PLURAL, DIVERSE SEPARATING OPERATIONS

12.2 . Including electrostatic

13 . Aqueous suspension, sifting, and stratifying

14 . Mercurial adhesion, sifting, and stratifying

19 . Gaseous suspension, sifting, and stratifying

15 . Mercurial suspension or adhesion and fluid suspension

16 .. Aqueous suspension

17 .. Aqueous suspension and sifting

18 .. Aqueous suspension and stratifying

20 .. Gaseous suspension and stratifying

21 .. Gaseous suspension and sifting

22 .. Coincident

23 ... With deposition

24 ... Horizontal current

25 With deposition

26 Inclined current

27 With deposition

28 Vertical current

29 With deposition

30 ... Successive

31 ... With deposition

32 ... Horizontal current

33 With deposition

34 Inclined current

35 With deposition

36 Vertical current

37 With deposition

38 . Magnetic and sifting

39 . Magnetic and fluid suspension

40 . Magnetic and stratifying

41 . Mercurial suspension and mercurial adhesion

42 . Mercurial adhesion or suspension and sifting

43 . Mercurial adhesion or suspension and stratifying
44 . Sifting and stratifying
44.1 . Including sorting of special items or sorting by methods or apparatus includable in subclasses 509 through 707

44.2 .. Fluid jet
44.3 .. Drum-type sifter
44.4 .. Manual sorting

45 ADHESION

46 . With selective differentiation
47 .. Coating
48 ... Mercurial (i.e., amalgamators)
49 . Coated surface or mass
50 .. Mercurial
51 ... Applying or removing coat
52 ... Contact elements
53 Agitators
54 Baffles
55 Disks and spheres
56 Liners
57 Percolators
58 Receivers
59 Rotating
60 Centrifugal
61 Cylinders, external
62 Cylinders, internal
63 Endless belt
64 Shaking
65 With agitating or conveying
66 Fluid
67 With rubbing
68 Impact
69 Reciprocating
70 Rotating

127.1 ELECTROSTATIC

127.2 . With heating of particles
127.3 . With vibrating trough charging of particles
127.4 . Free fall type particle charging
128 . Attracting and repelling
129 . Attracting
130 . Repelling
131 . Stratifying

509 SORTING SPECIAL ITEMS, AND CERTAIN METHODS AND APPARATUS (E.G., POCKET TYPE AND LIGHT RESPONSIVE SORTING, ETC.) FOR SORTING ANY ITEMS

510 . Sorting eggs or components thereof
511 .. Radiant energy sensing means controls separating means
512 .. By weight
513 ... Sensing egg weight and controlling separating means in accordance therewith
514 ... Orbiting or rotating carrier responsive to egg weight
515 Carrier tilted by means (e.g., trip, cam, etc.) adjacent travel path when depressed to particular elevation
516 ... Same eggs successively placed on means (e.g., balance beams, etc.) responsive to different weights
517 . Sorting lumber, logs, pipes, rails, or like items
518 .. Condition responsive means controls separating means
519 ... Relatively movable calipers closed against item
520 ... Sensor responsive to item contact
521 .. With endless conveyor belt

- 522 . Sorting bottles, ampoules, jars, drinking vessels, or like ceramic or glass containers
- 523 .. Condition responsive means controls separating means
- 524 ... Sensing radiant energy reflected, absorbed, emitted, or obstructed by item or adjunct (e.g., label, cap, etc.) thereof
 - Sizing with visible light beam
 - Detecting internal flaw (e.g., air bubble, crack, etc.) in wall of item
 - By means of radio frequency radiation
 - Detecting flaw in, or absence or misplacement of, label on item
 - ... Sensing position, shape, or presence of closure
 - ... Sensor contacts item
 - Gauge
 - Plug
 - Relatively movable calipers closed against item
- 525 . Sorting paper money
- 526 . Sorting cigarettes, cigars, or packages thereof
- 527 .. Sensing radiant energy reflected, absorbed, emitted, or obstructed by item or adjunct thereof
 - .. Fluid or vacuum sensing means controls separating means
- 528 . Nonconveying driven means for turning item at separating or inspecting station to facilitate sorting
 - . Traveling items shifted to form line, or into end or edge alignment, to facilitate inspection or separation
 - . Traveling item turned to predetermined position
 - .. Plural orienting means
 - .. Reciprocable or pivotable orienting means
 - .. Fluid orienting means
 - .. Means orienting item moved by gravity
 - .. Driven orienting means
 - . Signalling, indicating, or display means
 - .. Indicia associated with cards, file folders, or like coded items, or with sorting means therefor (including cards, per se, with edge coding)
 - .. Operation of apparatus stopped
 - .. Signal lamp or audible alarm
- 529 .. Indicating scale
- 530 .. Item counter
- 531 . Condition responsive means controls separating means
- 532 .. Cards or sheets separated by rotatable suction drum
- 533 .. Sorting cards or sheets coded by perforation
 - .. Diverse
 - ... Diverse electrical tests
 - ... Including noncondition-responsive separating means
 - ... At single station
 - .. Means (e.g., information storing device, timer, delaying relay, etc.) delaying actuation of separating means
- 534 ... Mechanical
- 535 Rotatable pin carrier
- 536 ... Magnetic
- 537 Electrical
- 538 Electronic
- 539 Shift register
- 540 Controlled by article
- 541 .. Magnetic test sensing property of item
- 542 ... Magnetic core tested
- 543 ... Reading indicia
- 544 ... Permeability
- 545 .. Electrical test sensing property of item
- 546 ... Detecting flaw in dielectric
- 547 ... Electrical component tested
- 548 Resistor or capacitor
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575 Lamp or battery
576 .. Sensing radiant energy reflected, absorbed, emitted, or obstructed by item or adjunct thereof
577 ... Infrared, visible light, or ultraviolet
578 Ultraviolet
579 Laser
580 Color detection
581 Intensity
582 Measuring ratio of sensed intensities
583 Reading indicia
584 On mail
585 Mirror or prism in optical path
586 Sizing
587 Reflected from item
588 Transmitted through item
589 ... X-ray or gamma ray
590 ... Sonic or supersonic energy
591 .. Sensing by applying fluid or vacuum to item
592 .. Responsive to weight of item
593 ... Detecting movement of item support with electrical sensor
594 Photodetector
595 Switch
596 ... Pusher or deflector controls movement of item on separate support
597 .. Sensing position, shape, or presence of closure or end wall on container
598 .. Sensing contour of item having no missing parts
599 .. Sorting items according to susceptibility to deform (e.g., malleability, hardness, compressibility, etc.), rupture, or vibrate
600 .. Sensor contacts item
601 ... Gauge
602 Relatively movable calipers closed against item
603 Sheet gauging
604 Sensor generates electrical signal
605 Items separated into at least three classes
606 . Separating means
607 .. Corn silk separator
608 .. Sorting items according to edge coding
609 ... Magnet attracts or repels item
610 ... Keyboard control
611 ... Cards, file folders, or like items sorted by means of necked-down notch thereon
612 ... Cards, file folders, or like items alternatively having notch or hole at particular location thereon
613 .. Sorting cards, file folders, or like items having coded sorting holes
614 .. Hand supported implements
615 ... Brush, flail, or rake used other than as one of opposed pair of gauge elements to separate, or to facilitate separation of, items
616 ... Rotatable
617 .. Item gripped between opposed elements
618 ... Rollers
619 ... Gauge enters hole in item
620 ... Gauging passage between orbiting belts
621 ... Rotating or orbiting carrier having expandable gauging passage passing items of different size at different points along carrier travel path
622 ... Belt
623 With gauging pocket for individual item
624 Pocket formed by rollers, disks, or wheels spaced transversely of belt or by contoured transverse roller, bar, or slat
625 ... Gauge with clearer other than continuous feeder
626 ... Spacing between gauge elements increased to free item
627 ... Rotatable or pivotable clearer

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198/4/83
198/

- 628 ... Stationary clearer
- 629 ... Diverse
- 630 ... Including means supporting items for manual sorting or allowing operator to control item destination
- 631 ... Including separation effected by items following different trajectories through space
- 632 ... Including separation effected by item of particular size passing through gauging passage between separate elements
- 633 Stationary elements
- 634 ... Including separation effected by item of particular size passing through gauging aperture in wall (e.g., perforated panel, etc.)
- 635 ... Including separation effected by different items traveling in different directions while contacting a surface
- 636 ... Magnet attracts or repels item
- 637 ... Items thrown or falling through space strike surface and only some rebound
- 638 ... Items separate by following different trajectories through space
- 639 ... Fluid jet changes trajectory of item
- 640 ... Items thrown or falling through space strike surface and rebound with different trajectories
- 641 ... Takeoff ramp adjustable to different angular positions relative to horizontal plane
- 642 ... Thrower
- 643 ... Suction
- 644 ... Fluid jet
- 645 ... Sorting items by weight
- 646 ... Orbiting or rotating carrier responsive to item weight
- 647 Counterbalance on balance beam moved until beam tilts to item discharging position
- 648 Carrier tilted by means (e.g., trip, cam, etc.) adjacent travel path when depressed to particular elevation
- 649 ... Same items successively placed on means (e.g., balance beams, etc.) responsive to different weights
- 650 ... Item support swings about fixed horizontal axis to discharge at different vertically spaced points
- 651 ... Pusher moving item on separate surface
- 652 ... Pivotal
- 653 ... Reciprocable
- 654 ... Rotatable
- 655 ... Gravity-type conveyor (e.g., chute, etc.) movable between different discharge positions
- 656 ... Movement of items along different paths controlled by passive deflector
- 657 ... Deflector movable into and out of path of item
- 658 ... Deflector spaced above conveying means to pass item of particular size thereunder
- 659 ... Sorting items by size
- 660 ... Item of particular size passed through gauging passage between separate elements
- 661 Gauging passage between stationary element (e.g., bar, slat, etc.) and orbiting belt
- 662 Gauging passage between stationary element (e.g., bar, slat, etc.) and roller
- 663 Gauging passage between orbiting belt and roller or wheel
- 664 Gauging passage between elements of rotating cage
- 665 Gauging passage between elements of orbiting belt
- 666 Item moves along curved gauging passage
- 667 Gauging passage between rotatable elements
- 668 Element adjustable to change width of gauging passage
- 669 Helical roller
- 670 Items move longitudinally of gauging passage varying in width along length thereof
- 671 Spindle or roller having projecting elements spaced circumferentially thereof
- 672 Spindle or roller having axially spaced, flat-sided circumferential elements (e.g., flanges, disks, wheels, etc.) projecting therefrom
- 673 Cylindrical rollers

- 674 Gauging passage between moving elements (e.g., vibrating bars, slats, etc.)
- 675 Gauging passage between stationary elements (e.g., bars, slats, etc.)
- 676 Element adjustable to change width of gauging passage
- 677 Items move longitudinally of elongate elements
- 678 With means moving, or regulating movement of, items along elements
- 679 Width of gauging passage varies
- 680 ... Item of particular size passed through gauging aperture in wall (e.g., perforated panel, etc.)
- 681 Aperture in orbiting belt
- 682 Aperture in chute or trough
- 683 Aperture in circumferential wall of hollow body (e.g., tube, etc.) rotatable about longitudinal axis thereof
- 684 ... Item of particular size or shape enters pocket
- 685 On orbiting belt
- 686 On exterior of drumlike body (e.g., roller, etc.) rotatable about longitudinal axis thereof
- 687 On interior of hollow drumlike body (e.g., tube, etc.) rotatable about longitudinal axis thereof
- 688 .. Means pierces, or enters preformed hole in, item
- 689 .. Items separate by traveling in different directions while contacting drumlike body (e.g., roller, hollow cylinder, etc.) turning about longitudinal axis thereof
- 690 ... Items travel circumferentially and longitudinally of turning axis
- 691 ... Items separate by traveling in different directions while contacting same inclined surface of moving support
- 692 ... Items contact inclined reach of orbiting belt
- 693 Item separating reach inclined only in direction of belt movement
- 694 ... Translating support
- 695 ... Items separate by traveling in different directions while contacting same horizontal surface of moving support
- 696 .. Items separate by traveling in different directions while contacting same inclined surface of static support
- 697 ... Helical ramp
- 698 .. Means movable between horizontal item-supporting position and gravity discharge position
- 699 .. Sorting items according to susceptibility to deform (e.g., malleability, hardness, compressibility, etc.), rupture, or vibrate
- 700 .. Sorting items according to roughness or adhesiveness
- 701 .. Item turned while traveling
- 702 .. Manual sorting
- 703 ... Item supported on table or chute
- 704 Rotated about vertical axis
- 705 ... Item supported on orbiting or rotating carrier
- 706 .. Specific compartment of receptacle brought into alignment with feed means by operator
- 707 ... Items separated by tipping, rolling, or sliding off support under force of gravity
- 132 FLUID SUSPENSION**
- 133 . Gaseous
- 134 .. Horizontal current
- 135 ... With deposition
- 136 ... Inclined current
- 137 ... With deposition
- 138 ... Vertical current
- 139.1 ... With deposition
- 139.2 With centrifugal feed distribution
- 140 ... Expanding
- 141 With deposition
- 142 ... Grading deposition
- 143 ... With deflection
- 710 Plural individual interconnected separation means having swirling currents

- 711 Fluidically induced, oppositely directed axial flows only (e.g., multiple cyclone arrangements, etc.)
- 712 Serial arrangement
- 713 Mechanically induced swirling
- 714 Eduction rotor
- 715 Fluidically induced, oppositely directed axial flows (e.g., reverse free-vortexes formed, cyclone, etc.)
- 716 Including auxiliary fluid
- 717 Including inlet characteristic (e.g., helix, spiral, volute, etc.)
- 718 Guide vane
- 719 Tangential
- 720 Including specific underflow outlet feature (e.g., apex discharge, etc.)
- 721 Including specific overflow outlet feature (e.g., adjustable vortex finder, shape, size, etc.)
- 722 Fluidically induced unidirectional swirling (e.g., axial, radial, tangential separation, free-vortex, etc.)
- 723 Plural extractions at diverse locations along flow path
- 145 .. Impetus and countercurrent
- 146 .. Feeding
- 147 ... Conveyor
- 148 Centrifugal
- 149 Chute
- 150 Disk or cone
- 151 Stepped plane
- 152 ... Cylinder internal
- 153 ... Tossers
- 154 .. Current control
- 155 . Liquid
- 156 .. Horizontal current
- 157 .. Inclined current
- 158 .. Vertical current
- 159 ... With agitation
- 160 ... Expanding
- 161 With agitation
- 162 ... Floating
- 163 ... Buoyant material
- 164 Bubbles
- 165 Processes
- 166 Preferential
- 167 With modifying agents
- 168 Preferential
- 169 Apparatus
- 170 Agitating
- 171 Pneumatic
- 172 Oil
- 172.5 ... Gravity liquid
- 173 Suspension
- 174 Water or aqueous solution
- 175 Metallic (i.e., amalgamators)
- 176 Processes
- 177 With chemical treatment
- 178 Bath
- 179 Ore
- 180 With electric treatment
- 181 Bath
- 182 Ore
- 183 With heat treatment
- 183 Feeding and distributing
- 183 Submerging

- 184 Conveyor
- 185 Vacuum
- 186 With agitation
- 187 Baffles
- 188 Agitators
- 189 Surface
- 190 Impact
- 191 With rubbing
- 192 Feeding and discharging
- 193 Bath
- 194 Receptacles
- 195 Reciprocating
- 196 Chutes and tables
- 197 With agitators
- 198 Rotating
- 199 Centrifugal
- 200 With agitators
- 201 Stationary
- 202 Chutes and tables
- 203 With agitators
- 204 Reciprocating
- 205 Rotating
- 206 Riffles and traps
- 207 ... Surface film tension
- 208 .. Grading deposition
- 209 ... Chronometric
- 210 ... With deflection
- 724 ... Including circularly flowing liquid separation agent
- 725 ... Rotational hydrodynamic extraction (e.g., unidirectional hydrocyclone, vortical, whirlpool, etc.)
- 726 Including condition responsive control
- 727 Including oppositely directed axial flows around evacuated core (e.g., hydrocyclone having reverse free-vortexes formed, etc.)
- 728 Plural individual interconnected, oppositely directed axial flow producing separation phases (e.g., system arrangements, multiple hydrocyclones, etc.)
- 729 Serially connected
- 730 Including auxiliary fluid (e.g., air or gas core, dilution water, elutriation liquid, etc.)
- 731 Adjacent or subsequent to underflow discharge (e.g., dilution water, elutriation liquid, sedimentation chamber, sump, etc.)
- 732 Including specific overflow discharge feature (e.g., adjustable vortex finder, shape, size, etc.)
- 733 Including specific underflow discharge feature (e.g., apex construction, secondary vortex chamber, etc.)
- 734 Including specific inlet feature (e.g., shape, size, etc.)
- MAGNETIC**
- 212 . Diamagnetic
- 213 . Paramagnetic
- 214 .. Processes
- 215 .. Special application
- 216 .. Multiple type
- 217 .. Reciprocating magnets
- ... Rotating magnets
- 218 ... Belt
- 219 ... Cylinder external
- 220 Vertical axis
- 221 ... Cylinder internal
- 222 ... Disk
- 223.1 .. Stationary magnets

- 223.2 ... Cylinder external
- 224 ... Cylinder internal
- 225 .. With agitating or conveying
- 226 ... Magnetic
- 227 Traveling field
- 228 .. Discharging
- 229 ... Doffers
- 230 Magnetic
- 231 .. Feeding
- 232 ... Fluid suspension
- 233 SIFTING**
- 234 . Combined type
- 235 . Special applications
- 236 .. Distributing
- 237 .. Material testing
- 238 . With heating or cooling
- 239 . With weighting
- 240 . Feeding and discharging
- 241 .. Conveyors
- 242 .. Interconnected
- 243 . Feeding
- 244 .. Hoppers
- 245 ... With agitators or conveyors
- 246 ... Cut-offs and valves
- 247 .. Conveyors
- 248 ... Receptacles
- 249 Ash pan
- 250 ... Fluid
- 251 .. Reversible
- 252 .. Sifter movement
- 253 .. Selective
- 254 . Distributors or spreaders
- 255 . Discharging
- 256 .. Conveyors and valves
- 257 .. Conveyors
- 258 .. Valves
- 259 .. Receptacles
- 260 .. Tilting
- 261 . Conveying
- 262 .. Material forcing
- 263 .. Material positioning
- 264 ... Guides
- 265 Imperforate sections
- 266 Superposed
- 267 .. Retarders
- 268 . With liquid treatment
- 269 .. Reciprocating sifters
- .. Rotating sifters
- 270 ... Drum
- 271 ... Disk
- 272 ... Endless belt
- 273 .. Stationary sifters
- 274 . Concave and convex sifters
- 275 .. Reciprocating
- 276 ... With agitators
- 277 Reciprocating
- 278 Rotating
- 279 ... Rotating
- 280 ... With agitators

- 281 .. Stationary
- 282 ... With reciprocating agitators
- 283 ... With rotating agitators
- . Drum sifters
- .. Horizontal and inclined
- 284 ... Feeding or dischargingd
- 285 Peripheral feed
- 286 Inlets
- 287 ... Reciprocating and rotating
- 288 ... Rotating
- 289 Multiple
- 290 Concentric
- 291 Nested
- 292 Superposed
- 293 With agitators and conveyors
- 294 Lifters and deflectors
- 295 Pneumatic
- 296 Rotating
- 297 Attached
- 298 Lifters
- 299 Lifters and beaters
- 300 ... Stationary
- .. Vertical
- ... Reciprocating and rotating
- 301 ... Reciprocating
- 302 ... Rotating
- 303 With agitators
- 304 ... Stationary
- 305 With agitators
- 306 . Endless belt sifters
- 307 .. With agitators
- . Plane sifters
- .. Horizontal and inclined
- 308 ... Reciprocating and rotating
- ... Reciprocating
- Distorting
- 310 Multiple
- 311 With pneumatic treatment
- 312 Alined
- 313 Stepped
- 314 Superposed
- 315 With intermediate conveyors
- 316 With dischargers
- 317 With pneumatic treatment
- 318 Attaching and adjusting
- 319 With agitators and conveyors
- 320 Pneumatic
- 321 Reciprocating
- 322 Unattached
- 323 Rotating
- 324 With horizontal and vertical shake
- 325 Gyratory
- 326 Lateral
- 327 With impact
- 328 Longitudinal
- 329 With impact
- 330 With horizontal shake
- 331 Longitudinal and transverse
- 332 Gyratory

- 333 Lateral
- 334 Impactive
- 335 Pivoted
- 336 With impact
- 337 Sliding
- 338 With impact
- 339 Swinging
- 340 With impact
- 341 Longitudinal
- 342 Sliding
- 343 With impact
- 344 Swinging
- 345 With impact
- 346 With vertical shake
- 347 Impactive
- 348 Pivoted
- 349 With impact
- 350 ... Rotating
- 351 With agitators
- 352 ... Stationary
- 353 Multiple
- 354 Stepped
- 355 Superposed
- 356 Zigzag
- With agitators
- 357 Reciprocating
- 358 Rotating
- 359 .. Vertical
- 360 ... Reciprocating
- 361 ... Rotating
- 362 . Spiral sifters
- 363 . Elements
- 364 .. Actuating
- 365.1 ... Reciprocating
- 365.2 Cam and linkage
- 365.3 With cushioning
- 365.4 Differential motion
- 366 Gyrating
- 366.5 Unbalanced weight
- 367 Unbalanced weight
- 368 Magnetic
- 369 ... Rotating
- 370 ... Bins and casings
- 371 ... Adapters
- 372 ... Closures
- 373 ... Compartments and receptacles
- 374 ... Household
- 375 Chutes
- 376 Hods
- 377 Stoves and furnaces
- 378 ... Venting
- 379 ... Clearers
- 380 ... Fluid
- 381 ... Jarring
- 382 Knockers
- 383 Whips
- 384 ... Pressers
- 385 ... Wipers
- 386 Brush

- 387 Reciprocating
- 388 Brush
- 389 Rotating
- 390 Brush
- 391 .. Mesh closures
- 392 .. Dress
- 393 ... Bars
- 394 Adjusting
- 395 Attaching
- 396 Reciprocating
- 397 ... Perforated sheet
- 398 Adjusting
- 399 Attaching
- 400 ... Cords and wires
- 401 ... Woven
- 402 Adjusting
- 403 Attaching
- ... Frames
- 404 Adjusting
- 405 ... Attaching
- 406 ... Drum
- 407 Sectional
- 408 ... Plane
- 409 ... Supports
- 410 ... Axial
- 411 ... Rim
- 412 ... Framework
- 413 Adjustable
- 414 Knockdown
- 415 ... Hangers and standards
- 416 ... Levelers
- 417 ... Manual
- 418 Scoop
- 419 Shovel
- 420 ... Portable
- 421 ... Vehicles
- 422 STRATIFIERS**
 - . With liquid treatment
 - .. Movable bed
 - ... Permeable
 - Constant current
 - Divergent or opposite travel
 - Pulsating current
 - Divergent or opposite travel
 - Parallel travel
 - ... Belt
 - Divergent travel
 - Opposite travel
 - Reciprocating support
 - Divergent travel
 - Opposite travel
 - ... Chutes and tables
 - Spiral
 - Reciprocating-rotating
 - Divergent or opposite travel
 - Reciprocating
 - Annular
 - Divergent or opposite travel
 - With agitators
- 423
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- 441 Divergent travel
- 442 Opposite travel
- 443 Parallel travel
- 444 Rotating
 - .. Receptacles
- 445 ... Reciprocating-rotating
- 446 ... Reciprocating
 - Manual support
- 447 With agitators
- 448 Reciprocating
- 449 Rotating
- 450 Rotating
 - Horizontal or inclined axis
 - With agitators or conveyors
- 451 Vertical axis
- 452 .. Stationary bed
- 453 ... Permeable
 - Constant current
 - Pulsating current
- 454 Divergent or opposite travel
- 455 Parallel travel
- 456 Chutes and tables
- 457 Annular, circular or spiral
- 458 With divergent or opposite travel
- 459 ... Receptacles
- 460 With agitators or conveyors
- 461 Reciprocating
- 462 Rotating
- 463 Horizontal or inclined axis
- 464 Vertical axis
- 465 . With pneumatic treatment
- .. Movable bed
- ... Permeable
- 466 Constant current
- 467 Divergent or opposite travel
- 468 Pulsating current
- 469 Divergent or opposite travel
- 470 ... Belts
- 471 ... Chutes, tables, and receptacles
- 472 Divergent or opposite travel
- 473 ... Drums
- .. Stationary bed
- ... Permeable
- 474 With constant current
- 475 With pulsating current
- 476 Divergent or opposite travel
- 477 .. Chutes, tables, and receptacles
- 478 . Magnetic
- .. Movable bed
- 479 .. Chutes, tables, and receptacles
- 480 ... Divergent travel
- 481 ... Opposite travel
- 482 ... Drums
- 483 . Stationary bed
- 484 .. Elements
- 485 .. Beds
- 486 ... Permeable
- 487 .. Cleaners
- 488 .. Feeding and discharging

489 ... Automatic control
490 .. Discharging
491 ... Automatic control
492 ... Conveyers
493 ... Dividers and skimmers
494 ... Exits
495 With positively operated dischargers
496 Automatic control
497 .. Feeding
498 ... Distributing
499 ... Regulating
.. Fluid supply
500 ... Liquid
501 Circuit
502 ... Pneumatic
503 .. Operating mechanism
504 ... Reciprocating
505 ... Rotating
506 .. Riffles
507 ... Overhung
508 .. Supports

CROSS-REFERENCE ART COLLECTIONS

900 **SORTING FLAT-TYPE MAIL**
901 **FROTH FLOTATION; COPPER**
902 **FROTH FLOTATION; PHOSPHATE**
903 **FEEDER CONVEYOR HAVING OPPOSED GRIPPERS**
904 **FEEDER CONVEYOR HOLDING ITEM BY MAGNETIC ATTRACTION**
905 **FEEDER CONVEYOR HOLDING ITEM BY SUCTION**
906 **PNEUMATIC OR LIQUID STREAM FEEDING ITEM**
907 **MAGNETIC FEEDER**
908 **ITEM FED BY FREE FALL**
909 **ITEM HOLDING FEED MAGAZINE INSERTABLE IN SORTING APPARATUS**
910 **FEED HOPPER**
911 **FEED MEANS SUPPORTING OR GUIDING ITEM MOVING UNDER INFLUENCE OF GRAVITY**
912 **ENDLESS FEED CONVEYOR WITH MEANS FOR HOLDING EACH ITEM INDIVIDUALLY**
913 **SCREW FEED CONVEYOR**
914 **DIVERSE SEQUENTIAL FEEDING STEPS**
915 **CENTRIFUGAL FEEDER**
916 **RECIPROCATING PUSHER FEEDING ITEM**
917 **ENDLESS BELT PUSHER FEEDING ITEM**
918 **SWINGING OR ROTATING PUSHER FEEDING ITEM**
919 **ROTARY FEED CONVEYOR**
920 **VIBRATORY FEED CONVEYOR**
921 **RECIPROCATING OR OSCILLATING FEED CONVEYOR**
922 **MISCELLANEOUS FEED CONVEYORS**
923 **FEED THROUGH INCLUDING AT LEAST ONE ENDLESS CONVEYOR**
924 **GRAVITY CONVEYOR MOVING ITEM FROM SEPARATING STATION**
925 **DRIVEN OR FLUID CONVEYOR MOVING ITEM FROM SEPARATING STATION**
926 **SILVERWARE SORTER**
927 **COP SORTER**
928 **CONTAINER CLOSURE SORTER**
929 **FASTENER SORTER**
930 **MUNICIPAL SOLID WASTE SORTING**
931 **MATERIALS OF CONSTRUCTION**

<u>932</u>	FLUID APPLIED TO ITEMS
<u>933</u>	ACCUMULATION RECEIVING SEPARATED ITEMS
<u>934</u>	MOVING ITEMS TO SORTING MEANS IN SPACED RELATION LENGTHWISE OF FEED PATH
<u>935</u>	AMBULANT
<u>936</u>	PLURAL ITEMS TESTED AS GROUP
<u>937</u>	LAUNDRY SORTING
<u>938</u>	ILLUMINATING MEANS FACILITATING VISUAL INSPECTION
<u>939</u>	VIDEO SCANNING
<u>940</u>	NONCONDITION-RESPONSIVE SORTING BY CONTOUR
<u>941</u>	ITEM CARRYING BRIDGE RAISABLE TO EXPOSE DISCHARGE OPENING
<u>942</u>	OPERATOR SELECTS DESTINATION OF ITEM

FOREIGN ART COLLECTIONS

FOR000 **CLASS-RELATED FOREIGN DOCUMENTS**

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